

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (original) In a multi-ply wood structure shear connection including a plurality of wood screw fasteners and a plurality of wood structural members placed in edge-to-edge configuration comprising:
said screw fastener including,
 - a. a shank having a head end;
 - b. a pointed end portion formed on an entering extremity of said shank ,opposite said head end, having a plurality of thread convolutions and a recess providing a cutting edge for forming a first bore in said wood structural members and having a selected outer diameter;
 - c. said shank having a threaded shank portion having thread convolutions similar to said thread convolutions on said pointed end portion with an outer diameter greater than said diameter of said first bore and beginning at a first point adjacent said pointed end portion and extending axially along the periphery of said shank to a second end point and adapted to form and engage threads in said wood structural members;
 - d. said shank having a knurled portion formed with a plurality of knurls having dull edges and having a first point adjacent said second point of said threaded shank portion and extending axially along said shank to a second point and having an outside diameter generally equal to the outer diameter of said thread convolutions in said threaded shank portion and having

- an inside diameter substantially less than said outside diameter of said knurled portion and equal to or only slightly greater than the diameter of said first bore;
- e. said knurls are formed with a tapered entering portion forming a smooth transition between the inner diameter of said shank and said outside diameter of said knurled portion;
 - f. said shank having an unthreaded shank portion having a diameter generally equal to said outside diameter of said knurled portion and having a first point adjacent said second point of said knurled portion and extending axially along said shank a distance substantially greater than the length of said knurled portion and the thickness of said metal connector at said planar portion and terminating at a second point adjacent said head end;
 - g. said knurls having said dull edges bend over, buckle and crush without severing, a substantial proportion of the wood fibers of the inner portions of said threads formed in said wood structural members forming a nominal annular zone of bent over, buckled and crushed, wood fibers having an outer diameter nominally greater than said diameter of said unthreaded shank portion and forming a tight fit between said unthreaded shank portion and said nominal annular zone of bent over, buckled and crushed wood fibers of said wood structural member;
 - h. a head integrally connected to said shank at said head end; and
 - i. each of said wood screw fasteners being driven through an edge face of each of said wood structural members and through at least a substantial portion of each of said wood structural members and said unthreaded shank portion

extending a substantial distance within at least one of said wood structural members.

2. (original) In a multi-ply wood structure shear connection including a plurality of wood screw fasteners and a plurality of wood structural members formed with a first bore comprising and placed in edge-to-edge configuration comprising;
- said wood screw fastener including:
- a. a shank having a head end;
 - b. a pointed end portion formed on an entering extremity of said shank opposite said head end for insertion through said first bore in said wood structural members;
 - c. said shank having a threaded shank portion having thread convolutions with an outer diameter greater than the diameter of said first bore and beginning at a first point adjacent said pointed end portion and extending axially along the periphery of said shank to a second point and adapted to form and engage threads in said wood structural member;
 - d. said shank having a knurled portion formed with a plurality of knurls having dull edges and having a first point adjacent said second point of said threaded shank portion and extending axially along said shank to a second point and having an outside diameter generally equal to the outer diameter of said thread convolutions in said threaded shank portion and having an inside diameter substantially less than said outside diameter of said knurled portion and equal to or only slightly greater than the diameter of said first bore;
 - e. said knurls are formed with a tapered entering portion forming a smooth transition between the inner diameter of said shank and said outside diameter of said knurled portion;

- f. said shank having an unthreaded shank portion having a diameter generally equal to said outside diameter of said knurled portion and having a first point adjacent said second point of said knurled portion and extending axially along said shank a distance substantially greater than the length of said knurled portion and the thickness of said metal connector at said planar portion and terminating at a second point adjacent said head end;
- g. said knurls having said dull edges bend over buckle and crush without severing, a substantial proportion of the wood fibers of the inner portions of said threads formed in said wood structural member forming a nominal annular zone of bent over buckled and crushed wood fibers, having an outer diameter nominally greater than said diameter of said unthreaded shank portion and forming a tight fit between said unthreaded shank portion and said nominal annular zone of bent over buckled and crushed wood fibers, of said wood structural members;
- h. a head integrally connected to said shank at said head end; and
- i. each of said wood screw fasteners being driven through an edge face of each of said wood structural members and through at least a substantial portion of each of said wood structural members and said unthreaded shank portion extending a substantial distance within at least one of said wood structural members.

3. (previously amended) In a multi-ply wood structure shear connection including a plurality of wood screw fasteners and a plurality of wood structural members placed in edge-to-edge configuration, said connection comprising:

- a. said screw fasteners formed with a threaded portion at their distal ends and a nonthreaded portion at their proximal ends, said nonthreaded portion having a diameter greater than the minor diameter of the threaded portion, said screw fasteners being inserted into and through a proximal one of said plurality of wood structural members, and said screw fasteners being inserted into a distal one of said plurality of wood structural members, each of said wood structural members being formed with two opposed and substantially parallel edges and two opposed and substantially parallel sides, said opposed and substantially parallel edges being comparatively narrower than the opposed and substantially parallel sides, wherein one of each pair of opposed edges of each structural member abuts another edge of said pair of opposed edges of a different one of said plurality of structural members;
- b. said wood structural members are formed with a first prebore opening for receipt of said screw fastener therethrough, said first prebore having a diameter smaller than the minor diameter of said threaded portion and said first prebore is positioned so as to extend from edge to edge in said proximal wood structural members and into the edge of the distal structural member, and generally parallel to the sides of said distal structural member and substantially therethrough;
- c. at least one of said structural members is formed with a second prebore opening coaxial to and coincident to a portion of said first prebore opening and having a diameter generally equal to said diameter of said nonthreaded portions of said wood screw fasteners and a length generally equal to said nonthreaded portions of said wood screw fasteners for close fitting engagement with said nonthreaded portions; and

- d. means supporting at least one side of said wood structural members to limit deflection thereof to prevent splitting of said wood structural members under selected design loading.
4. (original) In a multi-ply wood structure shear connection as described in claim 1 comprising:
- a. said wood structural members are configured in a truss.
5. (original) In a multi-ply wood structure shear connection as described in claim 4 comprising:
- a. said truss is a floor truss having parallel top and bottom chords.
6. (original) In a multi-ply wood structure shear connection as described in claim 5 comprising:
- a. said screw fasteners join only said top chords.
7. (original) In a multi-ply wood structure shear connection as described in claim 5 wherein:
- a. said screw fasteners join only said bottom chords.
8. (original) In a multi-ply wood structure shear connection as described in claim 5 wherein:
- a. said floor truss includes vertical members; and
 - b. said screw fasteners join only said vertical members
9. (original) In a multi-ply wood structure shear connection as described in claim 5 comprising:
- a. said floor truss includes diagonal members; and
 - b. said screw fasteners join only said diagonal members.

10. (original) In a multi-ply wood structure shear connection as described in claim 5 comprising:
 - a. said floor truss includes diagonal and vertical members; and
 - b. said screw fasteners join said top chords, said bottom chords, said vertical members and said diagonal members.
11. (original) In a multi-ply wood structure shear connection as described in claim 2 comprising:
 - a. said wood structural members are configured in a truss.
12. (original) In a multi-ply wood structure shear connection as described in claim 11 comprising:
 - a. said truss is a floor truss having parallel top and bottom chords.
13. (original) In a multi-ply wood structure shear connection as described in claim 12 comprising:
 - a. said screw fasteners join only said top chords.
14. (original) In a multi-ply wood structure shear connection as described in claim 12 wherein:
 - a. said screw fasteners join only said bottom chords.
15. (original) In a multi-ply wood structure shear connection as described in claim 12 wherein:
 - a. said floor truss includes vertical members; and
 - b. said screw fasteners join only said vertical members.
16. (original) In a multi-ply wood structure shear connection as described in claim 12 wherein:
 - a. said floor truss includes diagonal members; and

- b. said screw fasteners join only said diagonal members.
17. (original) In a multi-ply wood structure shear connection as described in claim 12 comprising:
- a. said floor truss includes diagonal and vertical members; and
 - b. said screw fasteners join said top chords, said bottom chords, said vertical members and said diagonal members.
18. (original) In a multi-ply wood structure shear connection as described in claim 3 comprising:
- a. said wood structural members are configured in a truss.
19. (original) In a multi-ply wood structure shear connection as described in claim 18 comprising:
- a. said truss is a floor truss having parallel top and bottom chords.
20. (original) In a multi-ply wood structure shear connection as described in claim 19 comprising:
- a. said screw fasteners join only said top chords.
21. (original) In a multi-ply wood structure shear connection as described in claim 19 wherein:
- a. said screw fasteners join only said bottom chords.
22. (original) In a multi-ply wood structure shear connection as described in claim 19 wherein:
- a. said floor truss includes vertical members; and
 - b. said screw fasteners join only said vertical members.

23. (original) In a multi-ply wood structure shear connection as described in claim 19 wherein:
- a. said floor truss includes diagonal members; and
 - b. said screw fasteners join only said diagonal members.
24. (original) In a multi-ply wood structure shear connection as described in claim 19 comprising:
- a. said floor truss includes diagonal and vertical members; and
 - b. said screw fasteners join said top chords, said bottom chords, said vertical members and said diagonal members.
25. (cancelled) In a multi-ply wood structure shear connection including a plurality of wood screw fasteners and a plurality of wood structural members placed in edge-to-edge configuration, said connection comprising:
- a. said screw fasteners are formed with a pointed end, a recess for providing a cutting edge forming a first bore in at least a substantial portion of all of said wood structural members, and a shank with a threaded portion joining all of said wood structural members, said screw fasteners being inserted into and through a proximal one of said plurality of wood structural members, and said screw fasteners being inserted into a distal one of said plurality of wood structural members, each of said wood structural members being formed with two opposed and substantially parallel edge faces and two opposed and substantially parallel side faces, said opposed and substantially parallel edge faces being comparatively narrower than the opposed and substantially parallel side faces, wherein one of each pair of opposed edge faces of each structural member

- abuts another edge face of said pair of opposed edge faces of a different one of said plurality of structural members; and
- b. means supporting at least one side of said wood structural members to limit deflection thereof to prevent splitting of said wood structural members under selected design loading; and
 - c. said screw fasteners are positioned so as to extend from edge face to edge face in said proximal wood structural members and into the edge face of the distal structural member, and generally parallel to the side faces of said distal structural member.

26. (previously presented) A multi-ply wood structure shear connection including:

- a. a plurality of self-drilling wood screw fasteners;
- b. a plurality of wood structural members, wherein each wood structural member is part of a truss having top and bottom chords, and wherein each of said self-drilling wood screw fasteners is inserted into and through a proximal one of said plurality of wood structural members without any form of pre-drilling, and each of said self-drilling wood screw fasteners is inserted into a distal one of said plurality of wood structural members without any form of pre-drilling, and wherein each of said wood structural members has at least one relatively narrow edge face and one relatively wide side face, wherein:
 - i. said self-drilling wood screw fasteners include:
 - (a). a shank having a head end;
 - (b). an entering extremity of said shank opposite said head end; and
 - (c). a head integrally connected to said shank at said head end, wherein:

- (1) said wood structural members have a plurality of first bores, wherein said plurality of first bores are formed only by driving said plurality of screw fasteners into said wood structural members; and
 - (2) said shank of each of said self-drilling wood screws has a threaded shank portion having thread convolutions with an outer diameter greater than the diameter of said first bores, said threaded shank portion beginning at a first point adjacent said pointed end portion and extending axially along the periphery of said shank to a second point and adapted to form and engage threads in said wood structural members; and
 - ii. each of said self-drilling wood screw fasteners is driven through at least a substantial portion of each of said wood structural members; and wherein
- c. each of said wood structural members is formed with two opposed and substantially parallel edge faces and two opposed and substantially parallel side faces, said opposed and substantially parallel edge faces being comparatively narrower than the opposed and substantially parallel side faces, wherein one of each pair of opposed edge faces of each structural member abuts another edge face of said pair of opposed edge faces of a different one of said plurality of structural members such that said edge faces are placed in edge-face-to-edge-face configuration and said side faces being placed in side-by-side configuration; and each of said self-drilling wood screw fasteners is driven through an edge face of one of said wood

structural members and said screw fasteners are positioned so as to extend from edge face to edge face in said proximal wood structural members and into the edge face of the distal structural member, and generally parallel to the side faces of said distal structural member.

27. (cancelled)

28. (previously presented) A multi-ply wood structure shear connection as described in claim 26, wherein:

- a. a pointed end portion is formed on said entering extremity of said shank.

29. (previously presented) A multi-ply wood structure shear connection as described in claim 28, wherein:

- a. said pointed end portions of said self-drilling wood screw fasteners has a recess providing a cutting edge for forming a first bore in said wood structural members and having a selected outer diameter.

30. (previously presented) A multi-ply wood structure shear connection as described in claim 26, wherein:

- a. said wood structural members are formed with a first bore; and
- b. said pointed end portion is formed for insertion through said first bore.

31. (previously presented) A multi-ply wood structure shear connection as described in claim 26, wherein:

- a. trusses are floor trusses having parallel top and bottom chords.

32. (previously presented) A multi-ply wood structure shear connection as described in claim 31, wherein:
- a. said screw fasteners join only said top chords.
33. (previously presented) A multi-ply wood structure shear connection as described in claim 31, wherein:
- a. said screw fasteners join only said bottom chords.
34. (previously presented) A multi-ply wood structure shear connection as described in claim 31, wherein:
- a. said floor trusses include vertical members; and
 - b. said screw fasteners join only said vertical members
35. (previously presented) A multi-ply wood structure shear connection as described in claim 31, wherein:
- a. said floor trusses include diagonal members; and
 - b. said screw fasteners join only said diagonal members.
36. (previously presented) A multi-ply wood structure shear connection as described in claim 31, wherein:
- a. said floor trusses include diagonal and vertical members; and
 - b. said screw fasteners join said top chords, said bottom chords, said vertical members and said diagonal members.